

**Research and Special Programs
Administration**

49 CFR Parts 172 and 173

[Docket No. HM-166V; Amdt. Nos. 172-107
and 173-198]

**Hazardous Materials; Uranium
Hexafluoride**

AGENCY: Research and Special Programs
Administration (RSPA), DOT.

ACTION: Final rule.

SUMMARY: This final rule amends the Hazardous Materials Regulations to clearly specify certain safety control measures that must be employed before uranium hexafluoride (UF₆) is offered for transportation. RSPA believes this action is necessary to further increase safety in the transportation of UF₆.

because of its potential chemical hazard in addition to its radiological hazard.

EFFECTIVE DATE: January 1, 1987.

FOR FURTHER INFORMATION CONTACT: Michael E. Wangler, Technical Division, Office of Hazardous Materials Transportation, 400 Seventh St. SW., Washington, DC 20590. (202) 366-4545.

SUPPLEMENTARY INFORMATION: On April 11, 1986, the RSPA published a Notice of Proposed Rulemaking (NPRM) (Docket HM-166V, Notice No. 86-2) in the Federal Register [51 FR 12529] which requested public comment on the need to amend the Hazardous Materials Regulations (HMR) by adding a new § 173.420 to specify certain safety control measures addressing packaging requirements for fissile and low specific activity (LSA) UF_6 .

Eight commenters responded in writing to the Notice. Five of the comments received objected to the wording contained in proposed § 173.420(a)(1) which addresses the cleaning of packagings used for transportation of UF_6 . As proposed, § 173.420(a)(1) would require all packagings for UF_6 to be cleaned "before filling" in accordance with Appendix A of American National Standards Institute (ANSI) Standard N14.1-1982. The commenters interpreted this to mean the packagings must be cleaned prior to each shipment. Appendix A of ANSI N14.1-1982, however, applies to the cleaning of new packagings only. Three of the commenters stated the requirement, as proposed would prevent the filling of in-service cylinders containing "heels," a practice "routinely . . . being carried out safely for a number of years." The RSPA agrees, and § 173.420(a)(1) has been reworded to eliminate this ambiguity.

RSPA received a comment from the Department of Energy suggesting that packagings of UF_6 be cleaned in accordance with Appendix A of the ANSI Standard prior to initial filling and at each "hydrostatic recertification." Although this terminology (hydrostatic recertification) is not used in the ANSI Standard, RSPA agrees that thorough cleaning during periodic inspection and retesting will enhance safety and has amended the proposed rule to reflect this position. In response to a comment received concerning the acceptability of methods of cleaning other than that described in Appendix A, revision of the wording contained in the NPRM clarifies RSPA's position that only the procedures prescribed in Appendix A of the ANSI Standard are acceptable for cleaning new packagings and

packagings during periodic inspection and test.

Two of the commenters inquired about the acceptability of using the present weight fill limits listed in Table 1 of ANSI N14.1-1982 for determining the maximum quantity of UF_6 allowed in one packaging during transportation. Additionally, one commenter suggested that RSPA specify a density value for UF_6 at 70 °F. to be used when calculating the mass of UF_6 which would occupy 61 percent of the volumetric capacity of the packaging used for its transportation.

The density of UF_6 at a 61 percent volume limit at 70 °F is 317.8 lb/ft³ as given in Department of Energy Report ORO-651. However, since the percent volumetric fill limit and temperature were specified, designation of a density value was considered to be unnecessary. Additionally, the fill limits for each type of cylinder as specified in ANSI N14.1-1982 are equivalent to 61 percent of the volumetric capacity at 70 °F. Since the rulemaking could not address specific fill limits for each type of cylinder, the specification of a percent of volumetric capacity at a specific temperature was deemed to be the most desirable solution.

Two commenters inquired about the acceptability of using cylinders which were not fabricated in accordance with ANSI N14.1-1982. These cylinders may have been constructed in accordance with an older version of the ANSI Standard or according to other specifications and may or may not conform to DOT Type A packaging standards. Although RSPA believes many of these cylinders will be acceptable for transporting UF_6 , a general provision allowing use of all cylinders which fall into one of the above categories can not be justified from a safety standpoint. Therefore, any cylinder not fabricated in accordance with ANSI N14.1-1982 will require an exemption granted under the provisions of Part 107 of the HMR before transportation of UF_6 is authorized.

One respondent questioned the safe transportation of cylinders filled with UF_6 that have been stored for many years. Under the ANSI standard, filled cylinders are excepted from the 5-year hydrostatic test requirement prescribed for packages of UF_6 in ANSI N14.1-1982. Based upon information concerning the physical, chemical, and radiological properties of UF_6 , RSPA believes that this compound, when properly packaged, is not materially affected by lengthy delays between shipments. Therefore, there should be no effective change to the contents of the packaging, provided that the requirements of 49 CFR 173.420(a) continue to be met.

Shippers of UF_6 are reminded that in addition to the specific shipping requirements stated herein, all shipments of UF_6 are subject to the standard requirements for all packages (§ 173.24) and the quality control requirements for shipments of radioactive materials (§ 173.475).

Several comments expressed concern over the use in the NPRM of the term "packaging" rather than "cylinder" for containment devices for UF_6 . However, because these packagings are not fabricated in accordance with a DOT cylinder specification, use of the term "cylinder" is not appropriate. In addition because the containers described in the ANSI Standard may be transported without additional packing or overpack, the requirements in 49 CFR 173.403 for a "packaging" are satisfied.

RSPA received one comment which stated the volumetric and pressure limitations proposed in the NPRM should be changed to "63.4% at 70 °F" and "less than 10 psia at 70 °F," respectively. RSPA disagrees. The limitations proposed in the NPRM (i.e., 61% and 14.7 psia) were taken from the ANSI Standard and U.S. Department of Energy Report ORO-651. The commenter failed to provide a technical basis for the proposed changes, and, without supporting data, deviation from acceptable industry standards as adopted in this amendment is not justified.

One commenter suggested the marking requirements prescribed under the ANSI Standard be incorporated into the final rule. RSPA agrees and has included a provision for compliance with the marking requirements established under ANSI N14.1-1982 to provide accurate information concerning the packaging's specification, manufacturer's identification, etc.

One commenter suggested that the "complete package system", the 21PF overpack, be discussed in the final rule. Requirements regarding the 21PF overpack are being addressed in a separate rulemaking under Docket No. HM-190, and are outside the scope of this rulemaking.

Additionally, a reference to § 173.421-2 was inadvertently omitted as one of the applicable requirements identified in the proposed § 173.420(a). This reference has been added. Similarly, the reference to the appropriate applicable section in the column (5)(a) for the entry "uranium hexafluoride, low specific activity" has been changed to refer to § 173.421-2.

In consideration of the comments received, RSPA is adopting the amendments proposed in Notice 86-2, with the following changes:

1. Packagings for UF₆ must be cleaned in accordance with ANSI N14.1-1982 both prior to initial filling and during periodic inspection and test; and

2. Packagings for UF₆ must be marked in accordance with ANSI N14.1-1982 (in addition to the markings already prescribed in the HMR).

Administrative Notices

The RSPA has determined that this rulemaking (1) is not "major" under Executive Order 12291; (2) is not "significant" under DOT's regulatory policies and procedures (44 FR 11034); (3) will not affect not-for-profit enterprises, or small governmental jurisdictions; and (4) does not require an environmental impact statement under the National Environmental Policy Act (40 U.S.C. 4321 et seq.). A regulatory evaluation is available for review in the docket. Based on limited information concerning the size and nature of entities likely affected, I certify that this regulation will not have a significant economic impact on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects

49 CFR Part 172

Hazardous material transportation, Hazardous materials table.

49 CFR Part 173

Hazardous materials transportation, Packaging, Radioactive Materials.

In consideration of the foregoing, 49 CFR Parts 172 and 173 is amended as follows:

PART 172—HAZARDOUS MATERIALS TABLES AND HAZARDOUS MATERIALS COMMUNICATIONS REGULATIONS

1. The authority citation for Part 172 continues to read as follows:

Authority: 49 U.S.C. 1803, 1804, 1805, 1808; 49 CFR Part 1, unless otherwise noted.

§ 172.101 [Amended]

2. In the § 172.101 Hazardous Materials Table:

a. For the entry "Uranium hexafluoride, fissile (containing more than 1% U-235)," the column (5)(b) section reference is revised to read "173.417, 173.420."

b. For the entry "Uranium hexafluoride, low specific activity" the column (5)(a) section reference is revised to read "173.421-2".

c. for the entry "Uranium hexafluoride, low specific activity," the column (5)(b) section reference is revised to read "173.420, 173.425."

PART 173—SHIPPERS—GENERAL REQUIREMENTS FOR SHIPMENTS AND PACKAGINGS

3. The authority citation for Part 173 continues to read as follows:

Authority: 49 U.S.C. 1803, 1804, 1805, 1806, 1807, 1808; 49 CFR Part 1, unless otherwise noted.

4. A new § 173.420 is added to read as follows:

§ 173.420 Uranium hexafluoride (fissile and low specific activity).

(a) In addition to any other applicable requirements of this subchapter, uranium hexafluoride, fissile or low specific activity, shall be packaged in conformance with the following requirements:

(1) Before initial filling and during periodic inspection and test, packagings shall be cleaned in accordance with the specific procedures of Appendix A of American National Standard N14.1-1982:

(2) Packagings must be designed, fabricated, inspected, tested and marked in accordance with American National Standard N14.1-1982:

(3) Uranium hexafluoride must be in solid form when offered for transportation;

(4) The volume of the solid uranium hexafluoride at 70° F must not exceed 61% of the volumetric capacity of the packaging; and,

(5) The pressure in the package at 70° F must be less than 14.8 psia.

(b) Packagings of uranium hexafluoride must be periodically inspected, tested and marked in accordance with American National Standard N14.1-1982.

(c) Each repair to a packaging for uranium hexafluoride shall be performed in conformance with American National Standard N14.1-1982.

Issued in Washington, DC on Nov. 10, 1986 under authority delegated in 49 CFR Part 1.

M. Cynthia Douglass,

Administrator, Research and Special Programs Administration.

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